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ABSTRACT

Evaluation models imply or assume theories of organization, behavior, and decision-making. Seldom does an evaluation model specify these assumptions. As a result, program evaluators often choose mechanistic models and their resultant information is either inadequate or inappropriate for most of the client's purposes. The Ontological Evaluation Model proposed in this paper is based on a developmental assumption, namely, that humans in purposeful groups, organizations, reenact a cycle of development very much akin to the ontology of a single individual. An educational program is a special case of human organizational development. Program evaluation from this contextual premise, therefore, takes organizational development as its structural analog. Reference is made in the presentation to applications in which the model has been used and to which its use seems most efficient. (Author)

AN ONTOLOGICAL MODEL OF EVALUATION:

A DYNAMIC MODEL FOR AIDING ORGANIZATIONAL DEVELOPMENT

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Rationale

Organizations, the way they develop and the impact that they have on their participants will be the subject for evaluation efforts in the next several years, for organizational development will replace curriculum development as the vehicle of change in education.

This represents a departure from the past decade in which educational change was focused on improvements in the school curriculum (Gagne, 1967). Almost every subject area was exposed to new efforts aimed at bringing about reforms in public education. Mathematics, science, English and social studies all received huge sums of money to provide curriculum improvements with the ultimate objective directed toward making students more capable of responding to a rapidly changing world.

Evaluation was used during the sixties to improve course offerings. Chronbach (1964) outlined a methodology for using evaluation in course improvement. He suggested a combination of (1) process studies, (2) proficiency measures, (3) attitude measures, and (4) follow-up studies. Stating that "evaluation is a fundamental part of curriculum development, not an appendage," he advocated a functional view of evaluation. "Its job is to collect facts the course developer can use and will use to do a better job, and facts from which a deeper understanding of the educational process will emerge."

In the middle and late sixties a host of writers began to develop both theoretical and operational models for curriculum development and for program development. In most cases, program was seen as an organizational strategy for installing or improving a specific course area.

Stufflebeam (1967) suggested the CIPP model. Its acronym indicates four types of evaluation; namely, context, input, process and product. Stake (1967) enunciated a need for "standard ways of translating aims and needs into practice." Tyler (1967) described the course of change during the sixties in evaluation from one of using evaluation instruments to screen talent to one of using evaluation to enable the learner to make appropriate responses to situations outside his control. Interest and attention was also devoted to developing new classifications for the evaluation strategies which could be used for different purposes. Scriven (1967) offered the concepts "formative," "summative," "payoff," "intrinsic," and "mediated," evaluation. More recently, he has added "goal-free" to the list. Generally speaking, the notion running throughout the development of each concept was that the technique would be used to improve a curriculum or subject oriented program.

Other models were developed with a curricular emphasis. Provus (1969) offered the discrepancy model. Use of the discrepancy model permits a program director to define standards for the program and to compare those standards with existing practice. In a later version of the model, Provus (1971) states that program standards and, hence, evaluation practice will vary with level of organizational development. He classifies developmental phases of evaluation as (1) design, (2) installation, (3) process, (4) product, and (5) cost. Each stage corresponds with a level of program development. Bloom and others (1971) published a handbook of formative and summative evaluation techniques to be used for evaluation of student learning.

Considerable literature has been written recently which indicates that curriculum oriented change is insufficient in itself to bring about needed improvements in education. Blumberg (1972) stated the problem succinctly as follows:

> The last fifteen years or so have witnessed an almost bewildering array of change efforts in schools. These have focused on curriculum teaching methods, alternative patterns of staffing, preschool education, the introduction of media technology and management information systems, to mention a few. But, in a curious way, we often feel there has been a great deal of change--but no change . . . The point seems to be that the recent as well as the long term history of educational change has been a first-aid affair that has left the basic fibre of schools unchanged.
>
> . . . Put another way, . . . There is a strong suggestion that most of it has been wasted because the target of it all has been peripheral to where the basis of long-lasting and productive change may be found -- in the nature of the human organization or system that is the school. (Blumberg, 9)

One of the most popular analyses of social trends in America has proved to be Toffler's Future Shock. Toffler attributes much of our new interest in organizations to the accelerated pace of life brought about by technological change and by population growth. The trend is labeled as "the new ad-hocracy."

> We are . . . witnessing the arrival of a new organizational system that will increasingly challenge and ultimately supplant bureaucracy. This is the organization of the future. I call it "ad-hocracy". . . . Man will find himself liberated, a stranger in a new free-form world of kinetic organizations . . . His position will be constantly changing, fluid and varied. And his organizational ties, like his ties with things, places and people,

> will turn over at a frenetic and ever accelerating rate. (Toffler, 125)

Toffler further delineates how he thinks this emphasis on organizational change will impact schools of the future.

> What passes for education today, even in our "best" schools and colleges, is a hopeless anachronism. . . What has been lacking is a consistent direction and a logical starting point. . . The starting point: the future. Such a movement will have to pursue three objectives -- to transform the organizational structure of the educational system, to revolutionalize its curriculum, and to encourage a more future - focused orientation. It must begin by asking root questions about the status quo.

Attempts have been made in the past to use evaluation as a basic component of organizational change, but those efforts inevitably returned to programmatic or curriculum emphasis. Brickell (1961) proposed a system of organizing New York State Department of Education for change, including the use of evaluation as one of the three major strategies for introducing change. They were designing programs, evaluating programs and disseminating programs. Program was used by Brickell to refer to a curriculum offering. Cook (1966) adapted the United States Air Force PERT manual to the educational environment, but again emphasis in Cook's technique was educational program.

One present need in evaluation is to develop an evaluation model which makes the organization its focus and not a single program within an organization. The ontological evaluation model is proposed for the specific purpose of providing a conceptual framework through which

evaluation can occur in and about developing organizations. Ontological development is stressed as a point of view which encourages a purposeful system of analyzing the dynamic and ever changing state of an organization. Too often in the past evaluation has proceeded as if the object of study were in a stable state. Almost all organizations are in continuous change. Grobman (1968) acknowledged that program focused evaluation has achieved little identifiable impact.

> In the past decade we have seen educational innovation on a larger scale than ever before. Much of the innovation effort has been devoted to curriculum development. While evaluation has played a part in many of the Course Content Improvement Projects, we have a sketchy record, at best, of what it contributed to the projects it was commissioned to serve. (Grobman, p. vii.)

In a more recent article, Walker (1972) made a similar acknowledgement. Walker further stated that evaluation is unlikely to have any impact unless it is tied directly to an identifiable series of decisions. It is unlikely that program evaluation will have a serious impact on organizational decision-making until evaluation is able to embed itself in the decision structure of the organization. To accomplish this a model is needed which will assist evaluators comprehend their roles and functions with reference to a specific organizational client.

The Ontological View of an Organization

The theory of science has developed two positions with quite different implications for research, scientific development and evaluation. Those positions have been explicated in detail by Ayres (1969) in his book Technological Forecasting and Long-Range Planning. Basically, the ontological view holds that an organization or any organism for that matter has the ultimate capacity for change within and that permanent development can best be explained by focusing on the nature of the organization rather than in terms of external forces. Conversely, the teleological viewpoint attributes change in an organization to external forces and stimuli.

Currently there is a serious debate among researchers and other scientists over which approach holds most value. The fundamental difference hinges on the way that an investigation is perceived.

Scientists who proceed from the teleological position maintain that goals should be predetermined and that invention and discovery are to be tolerated only as they fit into the predefined or "engineered" plan as approved at the outset. From this position it is assumed that development can only proceed to each succeeding stage in a linear fashion. As one phase is completed and proved causal in a chain of events then the next stage may be undertaken. Program development would proceed only on the basis of past research or evaluation and would be the result of a deductively derived series of causally proven steps.

Scientists who value discovery and systems which permit an accounting of unanticipated events operate from the ontological perspective.

This perspective permits investigation and development to occur in a systematic pattern of both parallel and serial events. Evaluation or research may be integral to and concurrent with development from this perspective. It is the evolutionary development of an organization that is valued and assisted by ontological evaluation. Stake (1972) provided an excellent insight into this position through his proposal for "responsive evaluation" which he compares with "preordinate evaluation". An evaluation is preordinate if it emphasizes "(1) a statement of goals, (2) use of objective tests, (3) standards held by program personnel, and (4) research-type reports." An evaluation is responsive if it "orients more directly to program activities than to program intents, if it responds to audience requirements for information, and if the different value-perspectives present are referred to in reporting the success of the program."

In a sense Scriven (1972) advocates the ontological point of view when he describes goal free evaluation. "It seemed to me, in short, that consideration and evaluation of goals was an unnecessary but also a possibly contaminating step. I began to work on an alternative approach--simply, the evaluation of actual effects against (typically) a profile of demonstrated needs in this region of education. (This is close to what Consumers' Union actually does.) I call this Goal-Free Evaluation (GFE)."

A more definitive understanding of the ontological position is possible through a brief review of its philosophical and theoretical development. In Greek philosophy ontology refers to the philosophy of existence.

Plato believed that existence was one of the things that the mind apprehends by itself. Anselm espoused the ontological argument for the existence of God as the greatest of all possible thoughts. Leibniz used the ontological position as did Hegel. Theologians such as Aquinas rejected the position. In the theory of science Bacon used the ontological position to support his belief that an inductive rather than a deductive approach was more valuable to scientific investigation.

In a similar fashion geologists approach their research from the positions of "analysis" and "synthesis". Those who hold the "analysis" view explain geological phenomena from a preordinate or teleological view point. Those who proceed with the "synthesis" point of view explain phenomena through processes of recreation and discovery. In the evaluation model proposed below, the organization is considered to be the object of study, and the approach or perspective offered is that one can only create knowledge of use to the organization by becoming part of the developmental process.

Typically there is a creative search for intrinsic or endogenous variables rather than an imposed design. The kind of study that would emerge could easily resemble systems analysis versus an imposed agricultural experimental design. In all probability ontological evaluation will chart what an organization is becoming better than it will describe what it is.

The Ontological Model for Organizational Evaluation

Organizational Characteristics

The figure on the following page contains a conceptual drawing of a three dimensional model. In order to stress the organization as the object of interest an analog of human development has been purposefully chosen. Just as the ontogeny of a single individual has identifiable but interactive phases and forms, so does the ontology of an organization.

Morphology or Structure. Morphology or structure has been chosen to represent a requirement of the evaluator to become aware of components, shape, boundaries and texture. Ayres (1969) uses a technique called morphological analysis to chart and graph the probable future of an organization through analysis of its structure.

Systems. The systems of an organization interact with structure, thrust and kinship linkages to provide an assessment of the internal workings of an organization. Their analogues to human systems are direct. Information systems are similar in operation among organizations to the cognitive processes of a single individual. Furthermore, it is difficult to understand an organization without being able to conceptualize interactions among the cognitive systems and other systems within the organization. Sentiment systems must be assessed as they generate and affect values and drives of the organization, and communications systems relate to the direction, control, dissemination and persuasive activities of an organization. Resource generation and consumption are generalizable

THE ONTOLOGICAL EVALUATION MODEL

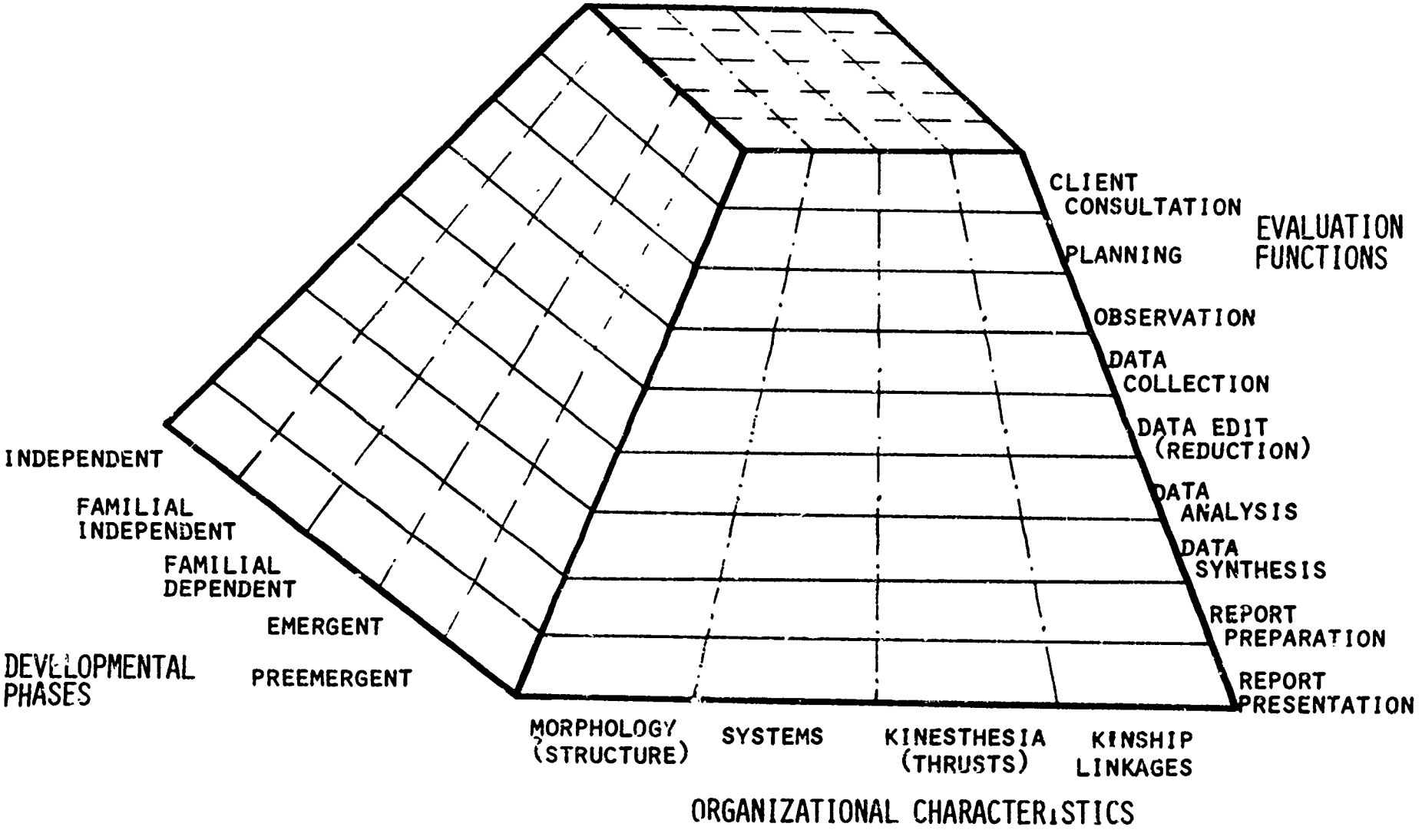


Figure 1

Table I

ORGANIZATION CHARACTERISTICS

MORPHOLOGY OR STRUCTURE	SYSTEMS	KINESTHESIA OR THRUSTS	KINSHIP LINKAGES
COMPONENTS	INFORMATION	GOALS	COMMUNICATIONS CHANNELS
NUMBER	STORAGE	DIRECTION	BETWEEN AND WITHIN GROUPS
DIMENSION	RETRIEVAL	RATE	BETWEEN INDIVISUALS
FUNCTION	PROCESSING	SOURCE	CLASSIFICATION BY COMMUNICATION
STRUCTURE	GENERATION	ENDURANCE	DIRECTION OF FLOW
ORDER	SENTIMENT		
RELATIONSHIPS	VALUE		
BOUNDARY	STATE		
TEXTURE	DRIVE		
QUALITY	COMMUNICATION		
PERMEABILITY	DIRECTION		
	CONTROL		
	DISSEMINATION		
	PERSUASION		
	RESOURCE		
	GENERATION		
	CONSUMPTION		
	FACILITIES		
	LOGISTICS		
	OCCUPANCY		
	ASSIGNMENT		
	UTILIZATION		
	LOCATION		

systems but are unique to almost every organization. Facilities systems are separate from morphology in that an organization has continuous developmental struggles with logistics, occupancy, assignment, utilization and location of facilities.

Kinesthesia or Thrust. Development of organizational goals and objectives can be viewed as a dynamic process. In this sense the word thrust is more appropriate. One can note direction such as reading or mathematics or public health, but consequence objectives are almost always useless in changing the course of events for those on whom the measures were taken. What is required is a system of projecting the future since it is only in the present and in the future that one has any meaningful control of events. One then must be conscious of determining direction, rate, source of force fields and possible endurance characteristics of the organization given present and projected thrusts.

Kinship Linkages

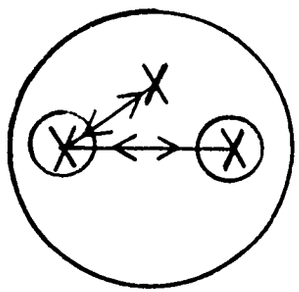
Almost every evaluator finds it necessary to understand the types of relationships that exist within and between organizations in order to operate effectively. The kinship linkages are classified in two ways on the following page. Evaluators must learn where in the organization to get information and how that information is generated. To do this they need to know the possible and actual channels of communication. Formal charts are sometimes helpful, but in emergent organizations they are not likely to provide sufficient information. One of the first tasks of the consultant is to map kinship ties even if he does this subconsciously.

KINSHIP LINKAGES AND COMMUNICATIONS NETWORKS

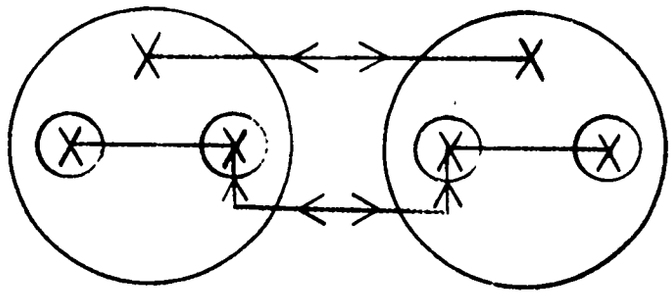
Communication Channels

Interactive Ties

Between Individuals

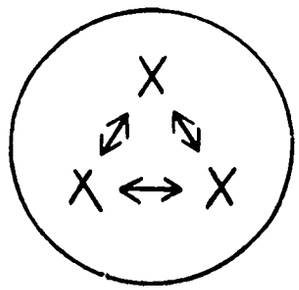


Between Groups



Intra-active Ties

Within Groups



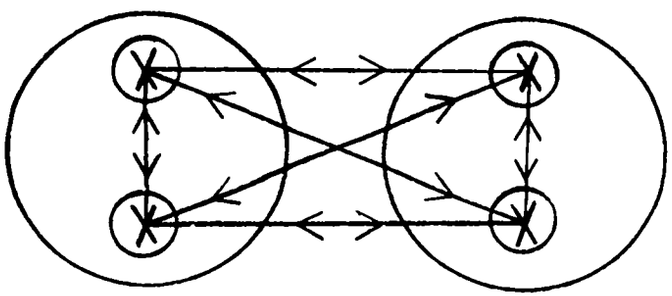


Figure 2

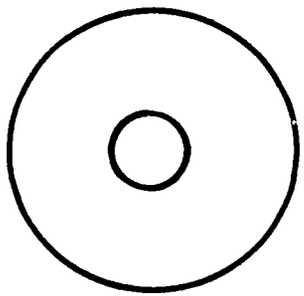
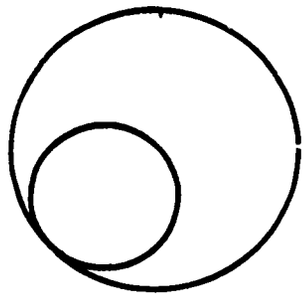
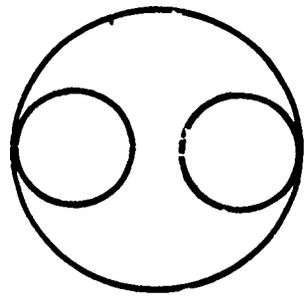
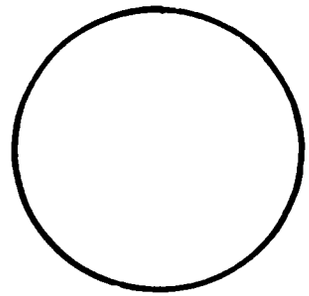
The between and within group communication channels have both amplification and impedence characteristics as well as problems created by extraneous or "noise" signals. In addition, kinship linkages may be characterized by the relationship tie and its vertical or horizontal directions of message flow. Power and authority relationships tend to foster vertical communications and only among peers are the communications likely to be horizontal. One can see the importance of this analysis when a low power figure relates to a high power figure horizontally. There are usually other explanations that bear further analysis.

Phases of Organizational Development

As an emerging profession, evaluation has a relatively brief history. It was not uncommon for evaluators to be expected in the early days to do the impossible. They would be asked to deliver an evaluation report of a project long before the project was organized or before it had an identifiable form or thrust. It became necessary, therefore, to be able to identify organizational stages of development concurrently with developing other assessments. Figure 3 provides a conceptualization of five stages of organizational developn ent. A pre-emergent organization may be a conceptual plan such as a project awaiting funding or a school staff during building construction. The emergent organization is one which is just beginning to develop but it is without an identifiable form or thrust. The familial dependent organization is dependent on a parent organization for resources, but has a distinct form and thrust and can be differentiated from other organizations in the

Figure 3

DEVELOPMENTAL PHASES

Preemergent	Emergent	Familial Dependent	Familial Independent	Independent
				
IDEA	WITHOUT IDENTIFIABLE FORM OR THRUST	FORM IDENTIFIABLE THRUST IDENTIFIABLE	FORM AND THRUST DISTINGUISHABLE FROM OTHER ORGANIZATIONS IN SAME FAMILY	CAPABLE OF REGENERATION DEPENDENT ON ENVIRONMENT BUT NOT A PARENT ORGANIZATION

same general family. The fully independent organization is capable of regeneration and is dependent on the environment only for resources. Form and thrust are both carefully delineated and identifiable.

Evaluation Functions

Evaluation functions are separated in the ontological model from the organizational characteristics and phases of development only as a way of conceptualizing them. Evaluation functions may, in fact, be imbedded within the normal systems of the organization. One of the paramount difficulties that the evaluator confronts within an organization is that of clarifying the differences between the evaluative functions and who has responsibility for performing these functions. For example, it is often necessary to use existing data for evaluative purposes. Misunderstandings can occur if the person who originally collected the data for other purposes feels that his jurisdictional or territorial rights have been invaded.

Consultation. The above and similar problems make client consultation the primary function of the evaluator. Without the capacity to negotiate design and data problems as well as the ability to appreciate the client's position, the evaluator will find all of the other functions meaningless and in all likelihood, unmanageable. The Evaluation Research Center at the University of Virginia approaches every student training activity with the client-evaluator role as paramount. That kind of clinical approach forces the staff to learn more than the students in many cases, but it also emphasizes for students the necessity of learning to deal effectively with clients.

Table II

CLASSIFICATIONS OF LINKAGES BY COMMUNICATION DIRECTION

CLASSIFICATION	LEVEL
Power and Authority	Vertical > Horizontal
Interest	Horizontal > Vertical
Skill	Horizontal > Vertical
Competition	Horizontal > Vertical
Natural	Horizontal ≅ Vertical

Planning. Almost every organizational administrator requires planning assistance. Since evaluators typically have analytical minds and quantification skills, it is also assumed that they will be able to assist management in planning. They may not, however, be good planners in a particular organizational setting. It is more important that the planning function occur than that the evaluator do the planning. Planning at its best in a developing organization is a tool for identifying organizational thrusts and resources, and is the scheduling of the utilization of resources to proceed toward identified thrusts while using new information to plan other new thrusts and resource utilization. The gerund is an appropriate syntactical description of this function since planning is never complete, but always dynamic and regenerative.

Observation. How observations take place and what is observed are among the most important functions of evaluation. From the ontological perspective the evaluator cannot have preconceived plans of observation. He must develop the observation system to fit the requirements of emerging variables which he discovers in the process of coming to know an organization. Reading sources may be far less important than whether children choose to read a newspaper when given the opportunity. In creating an observation system for teacher education, it is more important to have that system improve teaching than it is to have performance indices on a graph or chart. Who does the observing and the observational media to be used are also developmental questions which emerge from the organization from this perspective.

Data Collection. One could easily postulate the data collection position of this model. Data are generated in most organizations in large quantities. If one knows the data generation stations and can use existing data, teachers who give examinations as part of their normal course of instruction would welcome use of those tests in evaluative processes. Administrators often wonder why artificial means are developed to collect data they routinely have in their files. There are times, however, when data collection for evaluation must occur outside or in addition to the other functions of the organization. When this occurs careful plans must be developed to provide necessary resources for this function. Every evaluator has a portfolio of war stories to tell in this regard.

Data Edit or Reduction. Data may come in the form of movie tapes, television recordings, recordings, narrative reports, formal tests and in a host of other forms. The editing or reduction can be one of the most difficult to manage. It consists of reducing observations to a manageable and a compatible format for later analysis. Scoring of tests, tape editing and content analysis coding of narrative records are all required skills in this function.

Data Analysis. Experimental design and other teleological scientific approaches to analysis of data demand that the analysis system be announced and planned in detail prior to the study. Ontological evaluation maintains that it is not only appropriate, but more scientific to plan the analysis of emergent data in the social sciences during or following the collection. Some evaluators apologetically admit that they use descriptive

statistics and correlational formulas for many of their numerical data. The myth that experimental design is more scientific than emergent design forms in the social sciences has to be placed along side alchemy as a long outworn fable. It is more scientific to use emergent analysis techniques to capture the dynamics of change than it is to make false assumption that people change no more than plots of ground with two kinds of fertilizer applied. Experimental design is a static engineering technique with limited purposes and no more. One of the most damaging pieces of thinking that has occurred is the notion that the next best thing to an experimental design is a quasi-experimental design. Designs for evaluation and research in the social sciences would do well to disregard experimental design in the statistical sense entirely. Far more time should be devoted to conceptualizing the use of descriptive data in creative formats to generate powerful and useful inferences. Data analysis is far less important than the validity of the data going into the analysis. Path analysis and intuitive grouping lend themselves to hypothesis generation. Generation of plausible hypotheses about the future based on current decisions is in the end the most worthwhile of evaluation functions.

Data Synthesis. Displays of data require careful thought because it is the synthesis function used to postulate the major forecasts and recommendations for decision makers. Data cost in an aggregate form which says that a million dollar effort and two years of work by twenty people was unsuccessful generally ends up helping no one. What is required is to be able to forecast kinds of change needed to carry on the general thrusts in the future. Society does not quit trying to find cures for cancer because

previous efforts have failed. What everyone needs is information which will assist in the next round of studies. Evaluation properly done from the ontological position could make such a statement.

Report Preparation. Report preparation includes a number of choices about format, audience, timing, impact, purpose and class of decision influenced by the report. Each consideration carries a series of logical activities with it. Preparation of a report should take into account the possible unanticipated effects of the particular presentation.

Report Presentation. Mailing a written report to a decision-maker is a common practice, and it is the least likely method of influencing a decision outside sending no report at all. Reports should be presented in face to face meetings where discussion and interaction occur both about form and substance. If the presentation is timed to fit into the decision flow of an organization, a direct impact can come into the decision network.

The Evaluator

All of the foregoing material has been written without a major discussion of the evaluator and his role. A deliberate approach has been undertaken to explicate the functions of evaluation prior to a discussion of the evaluator's role. In the ontological model of evaluation, the evaluator could operate both internally and externally with reference to the organization he is attempting to assist. He must be conscious of the model's values, however. That means a commitment to use his role to assist the organization in its development. His activities will be characterized by a careful search for intrinsic or endogenous variables. He will intentionally try to design his observation system and reporting system to place him in a position to make recommendations about the future rather than assume the position of trying to make pass or fail judgments about past performance of the organization.

Client centered consultation about the organization will typify the relationship. He will frequently be asked to report on emerging but unanticipated phenomena, and evaluators using the ontological perspective will want to elicit variables rather than impose them. It is also possible that the evaluator from this position would prefer induction to deduction.

When evaluator role is discussed, it is common to confront the objectivity question. When speaking to laymen, they generally imply or state directly that they think that the evaluator would be more objective if located outside an organization than if he operated from within. No

doubt the external evaluator can remain more dispassionate the further he is removed from the organization, but his observations will not be more accurate.

Two analogies can be drawn. First, it is impossible to observe with a microscope and with a telescope. Neither observation device assures objectivity nor a lack of it. Second, a photographer can use the same camera to photograph a parlor from inside a house that he uses to photograph the roof of that same house. Neither photograph exhausts the concept 'house', but both can be recognized as pictures of a house. Moreover, there is a noticeable interactive effect in social evaluation between evaluator and the organization being served. Location of the evaluator does not necessarily preclude nor guarantee the presence of objectivity. Proximity has a potential for enhancing the interaction between evaluator and client. The position which would lend itself to the possibility of generating the largest quantity of information about an organization would appear to be one of close proximity.

Summary

A three dimensional conceptual model has been proposed for conducting evaluation of organizations versus programs or curricula. The ontological position is advocated in order to promote the dynamic search for intrinsic or endogenous variables. The evaluator uses the functions of evaluation to assist a developing organization in its ontology or state of becoming. Finally, it is proposed that the emphasis on the developing organization is more important than the position of the evaluator inside or outside an organization. But acknowledgement is also made of the fact that position does influence perspective and client-evaluator interaction.

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